

8EHQ-0992-13168

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E. I. DU PONT DE NEMOURS & COMPANY

INCORPORATED

WILMINGTON, DELAWARE 19898

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LEGAL DEPARTMENT



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September 11, 1992

Document Processing Center (TS-790)
Office of Pollution Prevention and Toxics
Environmental Protection Agency
401 M Street., S.W.
Washington, D.C. 20460
Attn: Section 8(e) Coordinator (CAP Agreement)



88920010971

Dear Coordinator:

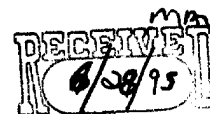
8ECAP-0025

On behalf of the Regulatee and pursuant to Unit II B.1.b. and Unit II C of the 6/28/91 CAP Agreement, E.I. Du Pont de Nemours and Co. hereby submits (*in triplicate*) the attached studies. Submission of this information is voluntary and is occasioned by unilateral changes in EPA's standard as to what EPA now considers as reportable information. Regulatee's submission of information is made solely in response to the new EPA §8(e) reporting standards and is not an admission: (1) of TSCA violation or liability; (2) that Regulatee's activities with the study compounds reasonably support a conclusion of substantial health or environmental risk or (3) that the studies themselves reasonably support a conclusion of substantial health or environmental risk.

The "Reporting Guide" creates new TSCA 8(e) reporting criteria which were not previously announced by EPA in its 1978 Statement of Interpretation and Enforcement Policy, 43 Fed Reg 11110 (March 16, 1978). The "Reporting Guide" states criteria which expands upon and conflicts with the 1978 Statement of Interpretation. Absent amendment of the Statement of Interpretation, the informal issuance of the "Reporting Guide" raises significant due processes issues and clouds the appropriate reporting standard by which regulated persons can assure TSCA Section 8(e) compliance.

For Regulatee,

Mark H. Christman
Counsel
Legal D-7158
1007 Market Street
Wilmington, DE 19898
(302) 774-6443



ORIGINAL

QE CAP

ATTACHMENT 1

Submission of information is made under the 6/28/91 CAP Agreement, Unit II. This submission is made voluntarily and is occasioned by recent changes in EPA's TSCA §8(e) reporting standard; such changes made, for the first time in 1991 and 1992 without prior notice and in violation of Regulatee's constitutional due process rights. Regulatee's submission of information under this changed standard is not a waiver of its due process rights; an admission of TSCA violation or liability, or an admission that Regulatee's activities with the study compounds reasonably support a conclusion of substantial risk to health or to the environment. Regulatee has historically relied in good faith upon the 1978 Statement of Interpretation and Enforcement Policy criteria for determining whether study information is reportable under TSCA §8(e), 43 Fed Reg 11110 (March 16, 1978). EPA has not, to date, amended this Statement of Interpretation.

After CAP registration, EPA provided the Regulatee the June 1, 1991 "TSCA Section 8(e) Reporting Guide". This "Guide" has been further amended by EPA, EPA letter, April 10, 1992. EPA has not indicated that the "Reporting Guide" or the April 1992 amendment supersedes the 1978 Statement of Interpretation. The "Reporting Guide" and April 1992 amendment substantively lowers the Statement of Interpretation's TSCA §8(e) reporting standard². This is particularly troublesome as the "Reporting Guide" states criteria, applied retroactively, which expands upon and conflicts with the Statement of Interpretation.³ Absent amendment of the Statement of Interpretation, the informal issuance of the "Reporting Guide" and the April 1992 amendment clouds the appropriate standard by which regulated persons must assess information for purposes of TSCA §8(e).

²In sharp contrast to the Agency's 1977 and 1978 actions to soliciting public comment on the proposed and final §8(e) Policy, EPA has unilaterally pronounced §8(e) substantive reporting criteria in the 1991 Section 8(e) Guide without public notice and comment, See 42 Fed Reg 45362 (9/9/77), "Notification of Substantial Risk under Section 8(e): Proposed Guidance".

³A comparison of the 1978 Statement of Interpretation and the 1992 "Reporting Guide" is appended.

Throughout the CAP, EPA has mischaracterized the 1991 guidance as reflecting "longstanding" EPA policy concerning the standards by which toxicity information should be reviewed for purposes of §8(e) compliance. Regulatee recognizes that experience with the 1978 Statement of Interpretation may cause a review of its criteri. Regulatee supports and has no objection to the Agency's amending reporting criteria *provided that* such amendment is not applied to the regulated community in an unfair way. However, with the unilateral announcement of the CAP under the auspices of an OCM enforcement proceeding, EPA has wrought a terrific unfairness since much of the criteria EPA has espoused in the June 1991 Reporting Guide and in the Agency's April 2, 1992 amendment is new criteria which does not exist in the 1978 Statement of Interpretation and Enforcement Policy.

The following examples of new criteria contained in the "Reporting Guide" that is not contained in the Statement of Interpretation follow:

- o even though EPA expressly disclaims each "status report" as being preliminary evaluations that should not be regarded as final EPA policy or intent⁴, the "Reporting Guide" gives the "status reports" great weight as "sound and adequate basis" from which to determine mandatory reporting obligations. ("Guide" at page 20).
- o the "Reporting Guide" contains a matrix that establishes new numerical reporting "cutoff" concentrations for acute lethality information ("Guide" at p. 31). Neither this matrix nor the cutoff values therein are contained in the Statement of Interpretation. The regulated community was not made aware of these cutoff values prior to issuance of the "Reporting Guide" in June, 1991.
- o the "Reporting Guide" states new specific definitional criteria with which the Agency, for the first time, defines as 'distinguishable neurotoxicological effects'; such criteria/guidance not expressed in the 1978 Statement of Interpretation.⁵;

othe "Reporting Guide" provides new review/ reporting criteria for irritation and sensitization studies; such criteria not previously found in the 1978 Statement of Interpretation/Enforcement Policy.

othe "Reporting Guide" publicizes certain EPA Q/A criteria issued to the Monsanto Co. in 1989 which are not in the Statement of Interpretation; have never been published in the Federal Register or distributed by the EPA to the Regulatee. Such Q/A establishes new reporting criteria not previously found in the 1978 Statement of Interpretation/Enforcement Policy.

⁴The 'status reports' address the significance, if any, of particular information reported to the Agency, rather than stating EPA's interpretation of §8(e) reporting criteria. In the infrequent instances in which the status reports contain discussion of reportability, the analysis is invariably quite limited, without substantial supporting scientific or legal rationale.

⁵ See, e.g., 10/2/91 letter from Du Pont to EPA regarding the definition of 'serious and prolonged effects' as this term may relate to transient anesthetic effects observed at lethal levels; 10/1/91 letter from the American Petroleum Institute to EPA regarding clarification of the Reporting Guide criteria.

In discharging its responsibilities, an administrative agency must give the regulated community fair and adequate warning to as what constitutes noncompliance for which penalties may be assessed.

Among the myriad applications of the due process clause is the fundamental principle that statutes and regulations which purport to govern conduct must give an adequate warning of what they command or forbid.... Even a regulation which governs purely economic or commercial activities, if its violation can engender penalties, must be so framed as to provide a constitutionally adequate warning to those whose activities are governed.

Diebold, Inc. v. Marshall, 585 F.2d 1327, 1335-36 (D.C. Cir. 1978). See also, Rollins Environmental Services (NJ) Inc. v. U.S. Environmental Protection Agency, 937 F. 2d 649 (D.C. Cir. 1991).

While neither the are rules, This principle has been applied to hold that agency 'clarification', such as the Statement of Interpretation, the "Reporting Guide" nor the April 1992 amendments will not applied retroactively.

...a federal court will not retroactively apply an unforeseeable interpretation of an administrative regulation to the detriment of a regulated party on the theory that the post hoc interpretation asserted by the Agency is generally consistent with the policies underlying the Agency's regulatory program, when the semantic meaning of the regulations, as previously drafted and construed by the appropriate agency, does not support the interpretation which that agency urges upon the court.

Standard Oil Co. v. Federal Energy Administration, 453 F. Supp. 203, 240 (N.D. Ohio 1978), aff'd sub nom. Standard Oil Co. v. Department of Energy, 596 F.2d 1029 (Em. App. 1978):

The 1978 Statement of Interpretation does not provide adequate notice of, and indeed conflicts with, the Agency's current position at §8(e) requires reporting of all 'positive' toxicological findings without regard to an assessment of their relevance to human health. In accordance with the statute, EPA's 1978 Statement of Interpretation requires the regulated community to use scientific judgment to evaluate the significance of toxicological findings and to determining whether they reasonably support a conclusion of a substantial risk. Part V of the Statement of Interpretation urges persons to consider "the fact or probability" of an effect's occurrence. Similarly, the 1978 Statement of Interpretation stresses that an animal study is reportable only when "it contains reliable evidence ascribing the effect to the chemical." 43 Fed Reg. at 11112. Moreover, EPA's Statement of Interpretation defines the substantiality of risk as a function of both the seriousness of the effect and the probability of its occurrence. 43 Fed Reg 11110 (1978). Earlier Agency interpretation also emphasized the "substantial" nature of a §8(e) determination. See 42 Fed Reg 45362, 45363

(1977). [Section 8(e) findings require "extraordinary exposure to a chemical substance...which critically imperil human health or the environment"].

The recently issued "Reporting Guide" and April 1992 Amendment guidance requires reporting beyond and inconsistent with that required by the Statement of Interpretation. Given the statute and the Statement of Interpretation's explicit focus on substantial human or environmental risk, whether a substance poses a "substantial risk" of injury requires the application of scientific judgment to the available data on a case-by-case basis.

If an overall weight-of-evidence analysis indicates that this classification is unwarranted, reporting should be unnecessary under §8(e) because the available data will not "reasonably support the conclusion" that the chemical presents a substantial risk of serious adverse consequences to human health.

Neither the legislative history of §8(e) nor the plain meaning of the statute support EPA's recent lowering of the reporting threshold that TSCA §8(e) was intended to be a sweeping information gathering mechanism. In introducing the new version of the toxic substances legislation, Representative Eckhart included for the record discussion of the specific changes from the version of H. R. 10318 reported by the Consumer Protection and Finance Subcommittee in December 1975. One of these changes was to modify the standard for reporting under §8(e). The standard in the House version was changed from "causes or contributes to an unreasonable risk" to "causes or significantly contributes to a substantial risk". This particular change was one of several made in TSCA §8 to avoid placing an undue burden on the regulated community. The final changes to focus the scope of Section 8(e) were made in the version reported by the Conference Committee.

The word "substantial" means "considerable in importance, value, degree, amount or extent". Therefore, as generally understood, a "substantial risk" is one which will affect a considerable number of people or portion of the environment, will cause serious injury and is based on reasonably sound scientific analysis or data. Support for the interpretation can be found in a similar provision in the Consumer Product Safety Act. Section 15 of the CPSA defines a "substantial product hazard" to be:

"a product defect which because of the pattern of defect, the number of defective products distributed in commerce, the severity of the risk, or otherwise, creates a substantial risk of injury to the public."

Similarly, EPA has interpreted the word 'substantial' as a quantitative measurement. Thus, a 'substantial risk' is a risk that can be quantified, *See*, 56 Fed Reg 32292, 32297 (7/15/91). Finally, since information pertinent to the exposure of humans or the environment to chemical substances or mixtures may be obtained by EPA through Sections 8(a) and 8(d) regardless of the degree of potential risk, §8(e) has specialized function. Consequently, information subject to §8(e) reporting should be of a type which would lead a reasonable man to conclude that some type action was required immediately to prevent injury to health or the environment.

Attachment

Comparison:

Reporting triggers found in the 1978 "Statement of Interpretation/ Enforcement Policy", 43 Fed Reg 11110 (3/16/78) and the June 1991 *Section 8(e) Guide*.

TEST TYPE	1978 POLICY CRITERIA EXIST?	New 1991 GUIDE CRITERIA EXIST?
ACUTE LETHALITY		
Oral	N}	Y}
Dermal	N}	Y}
Inhalation (Vapors)	} ⁶	} ⁷
aerosol	N}	Y}
dusts/ particles	N}	Y}
SKIN IRRITATION	N	Y ⁸
SKIN SENSITIZATION (ANIMALS)	N	Y ⁹
EYE IRRITATION	N	Y ¹⁰
SUBCHRONIC (ORAL/DERMAL/INHALATION)	N	Y ¹¹
REPRODUCTION STUDY	N	Y ¹²
DEVELOPMENTAL TOX	Y ¹³	Y ¹⁴

⁶43 Fed Reg at 11114, comment 14:

"This policy statements directs the reporting of specific effects when unknown to the Administrator. Many routine tests are based on a knowledge of toxicity associated with a chemical. Unknown effects occurring during such a range test may have to be reported if they are those of concern to the Agency and if the information meets the criteria set forth in Parts V and VII."

⁷Guide at pp.22, 29-31.

⁸Guide at pp-34-36.

⁹Guide at pp-34-36.

¹⁰Guide at pp-34-36.

¹¹Guide at pp-22; 36-37.

¹²Guide at pp-22

¹³43 Fed Reg at 11112

"Birth Defects" listed.

¹⁴Guide at pp-22

NEUROTOXICITY	N	Y ¹⁵
CARCINOGENICITY	Y ¹⁶	Y ¹⁷
MUTAGENICITY		
<i>In Vitro</i>	Y ¹⁸	Y ¹⁹
<i>In Vivo</i>	Y}	Y}
ENVIRONMENTAL		
Bioaccumulation	Y}	N
Bioconcentration	Y ²⁰	N
Oct/water Part. Coeff.	Y}	N
Acute Fish	N	N
Acute Daphnia	N	N
Subchronic Fish	N	N
Subchronic Daphnia	N	N
Chronic Fish	N	N
AVIAN		
Acute	N	N
Reproductive	N	N
Reprodcutive	N	N

¹⁵Guide at pp-23; 33-34.

¹⁶43 Fed Reg at 11112
"Cancer" listed

¹⁷Guide at pp-21.

¹⁸43 Fed Reg at 11112; 11115 at Comment 15

"Mutagenicity" listed/ *in vivo* vs *invitro* discussed; discussion of "Ames test".

¹⁹Guide at pp-23.

²⁰43 Fed Reg at 11112; 11115 at Comment 16.

CAS #2615-25-0

Chem: trans-1,4-Cyclohexanediamine

Title: Approximate Lethal Dose (ALD) of trans-1,4-Cyclohexanediamine in Rats

Date: November 10, 1987

Summary of Effects: slightly toxic; incoordination.

Study Title

Approximate Lethal Dose (ALD) of
trans-1,4-Cyclohexanediamine in Rats

Author

John W. Sarver

Study Completed On

November 10, 1987

Performing Laboratory

E. I. du Pont de Nemours and Company, Inc.
Haskell Laboratory for Toxicology and Industrial Medicine
Elkton Road, P. O. Box 50
Newark, Delaware 19714

Medical Research No.

8186-001

Laboratory Project ID

Haskell Laboratory Report No. 570-87

GENERAL INFORMATION

Material Tested: 1,4-Cyclohexanediamine, trans-

Medical Research No.: 8186-001

Haskell No.: 16,931

Physical Form: White solid

Purity: 99%

Composition: 99.0% trans-1,4-Cyclohexanediamine
1.0% cis-1,4-Cyclohexanediamine

Synonyms:

- trans-1,4-Diaminocyclohexane
- trans-1,4-DCH

Other Codes: PC-7

CAS Registry No.: 2615-25-0

Stability: The test material was assumed to be stable under the conditions of administration.

Sponsor: Petrochemicals Department
E. I. du Pont de Nemours and Company, Inc.
Wilmington, Delaware

Material Submitted By: Frank E. Herkes
Petrochemicals Department
E. I. du Pont de Nemours and Company, Inc.
Pontchartrain, Louisiana

In-Life Phase Initiated - Completed: 9/8/87 - 9/30/87

Notebook: E-48836, pp. 98-107.

There are 7 pages in this report.

Distribution:

- J. C. Olguin (1)
- F. E. Herkes (1)
- N. C. Chromey/W. J. Brock (1)
- J. W. Sarver/D. A. Martin (1)

Approximate Lethal Dose (ALD) of
trans-1,4-Cyclohexanediamine in Rats

SUMMARY

trans-1,4-Cyclohexanediamine (99% pure) was administered as a single oral dose by intragastric intubation to male rats. Deaths occurred up to 3 days after dosing. Clinical signs of toxicity were observed in lethally and nonlethally dosed animals. Under the conditions of this test, the ALD was 1000 mg/kg of body weight. This material is considered to be slightly toxic (ALD 500-5000 mg/kg) when administered as a single oral dose.

Work by: Debra A. Martin 10/28/87
Debra A. Martin
Technician

Study Director: John W. Sarver 10/28/87
John W. Sarver
Technologist

Approved by: William J. Brock 11/10/87
William J. Brock, Ph.D.
Research Toxicologist
Acute and Developmental Toxicology Section

JWS:alr:HLR570-87(17.14)

QUALITY ASSURANCE DOCUMENTATION

STUDY: MR 8186-001
H# 16,931

Approximate Lethal Dose (ALD) of
trans-1,4-Cyclohexanediamine in Rats

AUDITS:

Items Audited

Audit Dates

Protocol, Records,
and Final Report

11/3/87

SHORT-TERM AUDIT REPORT NUMBER: R-268

DATE FINDINGS REPORTED TO MANAGEMENT AND STUDY DIRECTOR: 11/3/87

In-life critical phases from a representative study of this test type are inspected quarterly. Since short-term studies are numerous and routine in nature, the in-life critical phases from one study exemplify the conduct of other studies from the same test type.

Reported by:

William J. Lynam

William J. Lynam
Quality Assurance Auditor

11/10/87

Date

INTRODUCTION

The purpose of this test was to determine an approximate lethal dose of trans-1,4-cyclohexanediamine when administered as a single oral dose to male rats. The ALD was defined as the lowest dose administered which caused death either on the day of dosing or within 14 days post exposure. This study was conducted according to the applicable EPA Good Laboratory Practice Regulations. Areas of noncompliance are documented in the study records. No deviations existed that significantly affected the validity of the study.

MATERIALS AND METHODS

A. Animal Husbandry

Male Crl:CD®BR rats, approximately 7 weeks old, were received from Charles River Breeding Laboratories, Kingston, New York. Rats were housed singly in suspended, stainless steel, wire-mesh cages. Each rat was assigned a unique identification number which was recorded on a card affixed to the cage. Purina Certified Rodent Chow® #5002 and water were available ad libitum. Rats were quarantined, weighed, and observed for general health for approximately one week prior to testing. Animal rooms were maintained on a timer-controlled, 12-hour light/12-hour dark cycle. Environmental conditions of the rooms were targeted for a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 10\%$. Excursions outside these ranges were of small magnitude and/or brief duration and did not adversely affect the validity of the study.

B. Protocol

The test material was suspended in distilled water and administered to one rat per dose rate by intragastric intubation. Dose rates administered ranged from 450 to 3400 mg/kg of body weight in increments of approximately 50%. The dosing day was test day one; postexposure day 14 was test day 15. Following administration of the test material, rats were observed for clinical signs of toxicity. Surviving rats were weighed and observed daily until signs of toxicity subsided, and then at least 3 times per week throughout the 14-day postexposure period. Observations for mortality were made daily throughout the study.

C. Records Retention

All raw data and the final report will be stored in the archives of Haskell Laboratory for Toxicology and Industrial Medicine, E. I. du Pont de Nemours and Company, Inc., Newark, Delaware or in the Du Pont Records Management Center, Wilmington, Delaware.

RESULTSA. Dosage and Mortality Data

The dosage regimen and the mortality resulting over the 15-day test period are detailed below. The lowest dose of trans-1,4-cyclohexane-diamine which resulted in the death of a test animal was 1000 mg/kg. Deaths occurred up to 3 days after dosing.

<u>Dosage</u> (mg/kg)	<u>Dose</u> <u>Volume</u> (mL)	<u>Suspension</u> <u>Concentration</u> (mg/mL)	<u>Initial Body</u> <u>Weight (g)</u>	<u>Mortality</u>
450	1.1	100	246	No
660	1.1	150	251	No
1000	2.5	100	246	Yes
1500	4.0	100	267	Yes
2300	3.5	150	227	Yes
3400	9.2*	100	272	Yes

* Administered in 2 doses, approximately 15 minutes apart.

B. Clinical Signs

Severe weight losses (10-14% of initial body weight) were observed in lethally and non-lethally dosed rats up to 2 days after dosing.

Nonlethal Doses

The rat dosed at 670 mg/kg exhibited lethargic behavior, incoordination and red discharge from the eyes up to 2 days after dosing. There were no clinical signs of toxicity observed in the rat dosed at 450 mg/kg.

Lethal Doses

Clinical signs of toxicity were observed up to 2 days after dosing and included lethargic behavior, hunched posture, limpness, incoordination, gasping, clear ocular discharge, partially closed eyes and brown oral discharge.

CONCLUSION

Under the conditions of this study, the ALD for trans-1,4-cyclohexane-diamine was 1000 mg/kg of body weight. This material is considered to be slightly toxic (ALD 500-5000 mg/kg) when administered as a single oral dose.

Triage of 8(e) Submissions

Date sent to triage: _____

NON-CAP

CAP

Submission number: 13168A

TSCA Inventory:

Y

N

D

Study type (circle appropriate):

Group 1 - Dick Clements (1 copy total)

ECO

AQUATO

Group 2 - Ernie Falke (1 copy total)

ATOX

SBTOX

SEN

w/NEUR

Group 3 - Elizabeth Margosches (1 copy each)

STOX

CTOX

EPI

RTOX

GTOX

STOX/ONCO

CTOX/ONCO

IMMUNO

CYTO

NEUR

Other (FATE, EXPO, MET, etc.): _____

Notes:

THIS IS THE ORIGINAL 8(e) SUBMISSION; PLEASE REFILE AFTER TRIAGE DATABASE ENTRY

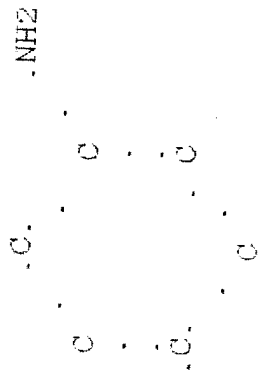
For Contractor Use Only

entire document: 0 1 2 pages 19 pages _____

Notes:

Contractor reviewer : JW Date: 1/24/96

LL15 ANSWER 1 OF 1 REGISTRY COPYRIGHT 1995 ACS
 2615-25-0* REGISTRY
 CN 1,4-Cyclohexanediamine, trans- (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN trans-1,4-Cyclohexanediamine
 CN trans-1,4-Diaminocyclohexane
 STEREOSEARCH
 MF C6 H14 N2
 DI COM
 CC STN Files: BEILSTEIN*, CA, CAOLD, CASREACT, CHEMLIST, CIN,
 GMELIN*, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, MSDS-SUM, TOXLIT,
 USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 ES 2:TRANS



TERE0 DIAGRAM AVAILABLE WITH GRAPHICS TERMINAL OR OFFLINE PRINT
 31 REFERENCES IN FILE CA (1967 TO DATE)
 3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

==> S 1,4-CYCLOHEXANEDIAMINE, (CIS-)/CN
1 1,4-CYCLOHEXANEDIAMINE, CIS-/CN

==> D RN SY

125 ANSWER 1 OF 1 REGISTRY COPYRIGHT 1995 ACS
RN 15827-56-2 REGISTRY

CN ***1,4-Cyclohexanediamine, cis- (8CI, 9CI)*** (CA INDEX NAME)

OTHER NAMES:

CN cis-1,4-Cyclohexanediamine

CN cis-1,4-Diaminocyclohexane

CHC/ATRIAGE TRACKING DRASE ENTRY FORM

CREATS DATA: 0992-1368 SEQ. A

INITIARY ACTINS:
 0001 NO INFO REQUESTED
 0002 STRIKE 3 PLANNED IN MAY
 0003 WITHDRAWN IN WORK IN 111111
 0004 LAB/ANALYSIS (TAMM) 5
 0005 PROCESSION IN: (TAMM) 5
 0006 APP USE DISCONTINUED
 0007 PRODUCTION DISCONTINUED
 0008 CONFIDENTIAL

INFORMATION REQUESTED: FLWT DATE
 0001 NO INFO REQUESTED
 0002 INFO REQUESTED (TECH)
 0003 INFO REQUESTED (VOL. ACTING)
 0004 INFO REQUESTED (REPORTING RATIONALE)
 0005 REFER TO CHEMICAL SCREENING
 0006 CAP NOTICE

TYPE: INT. SUPP FLWT
 SUBMITTER NAME: E. I. Dupont de Nemours and Company

SUB. DATE: 09/11/92 OTH DATE: 09/22/92 CRAD DATE: 06/28/95

CHEMICAL NAME: 1,4-cyclohexanediamine, trans-
 1,4-cyclohexanediamine, cis-
 2615-25-0
 15827-56-2

INFORMATION TYPE	P.F.C.	INFORMATION TYPE	P.F.C.	INFORMATION TYPE	P.F.C.
0201 ONCO (HUMAN)	01 02 04	0204 SPECIM	01 02 04	0201 BIOLOGO (ANIMAL)	01 02 04
0202 ONCO (ANIMAL)	01 02 04	0205 HUMAN EXPOS (PROD CONTAM)	01 02 04	0202 BIOLOGO (HUMAN)	01 02 04
0203 CELL TRANS (IN VITRO)	01 02 04	0206 HUMAN EXPOS (ACCIDENTAL)	01 02 04	0203 CHEMOPHY PROP	01 02 04
0204 MUTA (IN VITRO)	01 02 04	0207 HUMAN EXPOS (MONITORING)	01 02 04	0204 CLASTO (IN VITRO)	01 02 04
0205 MUTA (IN VIVO)	01 02 04	0208 BIOLOGO TOX	01 02 04	0205 CLASTO (ANIMAL)	01 02 04
0206 REPROVTERATO (HUMAN)	01 02 04	0209 ENV. OCCURRENCE	01 02 04	0206 CLASTO (HUMAN)	01 02 04
0207 REPROVTERATO (ANIMAL)	01 02 04	0210 EMER INC OF ENV CONTAM	01 02 04	0207 DNA DAMAGE/REP	01 02 04
0208 NEURO (HUMAN)	01 02 04	0211 RESPONSE REQUEST DELAY	01 02 04	0208 PRODUCE/PROC	01 02 04
0209 NEURO (ANIMAL)	01 02 04	0212 PRODUCE/RECHEN ID	01 02 04	0209 MEDS	01 02 04
0210 ACUTE TOX (HUMAN)	01 02 04	0213 REPORTING RATIONALE	01 02 04	0210 OTHER	01 02 04
0211 CHL TOX (HUMAN)	01 02 04	0214 CONFIDENTIAL	01 02 04		
0212 ACUTE TOX (ANIMAL)	01 02 04	0215 ALLERG (HUMAN)	01 02 04		
0213 SUB ACUTE TOX (ANIMAL)	01 02 04	0216 ALLERG (ANIMAL)	01 02 04		
0214 SUB CHRONIC TOX (ANIMAL)	01 02 04	0217 METAPHTARMACO (ANIMAL)	01 02 04		
0215 CHRONIC TOX (ANIMAL)	01 02 04	0218 METAPHTARMACO (HUMAN)	01 02 04		

USE: PRODUCTION

TOXICOLOGICAL CHANGES

SPECIES: RAT

CHRONO REVIEW: YES (PROPER/REVIEW)

NON-CH INVENTORI: YES

CAS SR: NO

LOW

MED

HIGH

NO (CONTINUE)

RETRA

IN INVENTORI

1-250213

13168A

L

Acute oral toxicity in rats is of low concern. Single oral gavage doses to male ChR:CD rats (1/dose) at levels of 450, 660, 1,000, 1,500, 2,300, and 3,400 mg/kg were lethal at $\geq 1,000$ mg/kg. Clinical signs included lethargy and incoordination at ≥ 660 mg/kg. At $\geq 1,000$ mg/kg, rats also exhibited hunched posture, limpness, and gasping.